REMARKS/ARGUMENTS

Claims 1-3, 5 and 7-19 are pending, claims 16-18 having been withdrawn from consideration. By this Amendment, claim 6 is cancelled without prejudice or disclaimer, and claims 1, 5 and 11 are cancelled. Support for the amendments to claims 1, 5 and 11 can be found, for example, in the present specification at page 3, line 3, and in original claims 1, 5 and 11. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Withdrawn Claims

For the reasons set forth below, Applicants submit that all pending claims presently subject to examination are in condition for allowance. Because withdrawn claims 16-18 depend from, and thus recite all features of, allowable claim 1, rejoinder and allowance of claims 16-18 are respectfully requested.

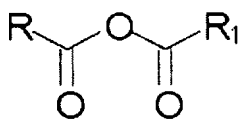
Rejections Under 35 U.S.C. §103

A. Li and Vaca-Garcia

The Office Action rejects claims 1-3, 5-12, 14 and 15 under 35 U.S.C. §103(a) over Li et al., "Chemical modification of wood by anhydrides without solvents or catalysts," ("Li") in view of Vaca-Garcia et al., "Cellulose esterification with fatty acids and acetic anhydride in lithium chloride/N,N-dimethylacetamide medium," ("Vaca-Garcia"). By this Amendment, claim 6 is cancelled, rendering the rejection moot as to that claim. As to the remaining claims, Applicants respectfully traverse the rejection.

Claim 1 recites "[a] process for chemical treatment of at least one lignocellulose material, comprising: impregnating the lignocellulose material with a chemical agent

comprising hydrocarbonaceous chains: wherein: the agent comprises a mixed anhydride, given by the formula:



where R is a hydrocarbonaceous chain derived from a C_2 to C_4 carboxylic acid and R_1 is a hydrocarbonaceous chain derived from a C_6 to C_{24} fatty acid, except that when R is a hydrocarbonaceous chain derived from acetic acid, R_1 is not a hydrocarbonaceous chain derived from benzoic acid; and the agent is capable of providing covalent grafting of a plurality of the hydrocarbonaceous chains to the lignocellulose material" (emphasis added). Li and Vaca-Garcia do not disclose or suggest such a process.

As indicated above, claim 1 requires that a lignocellulose material be treated with a mixed anhydride including a hydrocarbonaceous chain derived from a C_2 to C_4 carboxylic acid and a hydrocarbonaceous chain derived from a C_6 to C_{24} fatty acid. Li describes a method in which wood pieces are treated with acetic anhydride, propionic anhydride, butyric anhydride, isobutyric anhydride or hexanoic anhydride. *See* Li, page 216. It is undisputed that Li fails to disclose or suggest treating wood pieces with a mixed anhydride. *See* Office Action, page 6. Further, Li does not disclose or suggest that such anhydride could or should including a long hydrocarbonaceous chain derived from a C_6 to C_{24} fatty acid. *See* Office Action, page 6.

In view of the deficiencies of Li, the Office Action relies on Vaca-Garcia for its disclosure of a method in which a modified cellulose is esterified with fatty acids and acetic anhydride in a lithium chloride/N,N-dimethylacetamide medium. *See* Office Action, page 6; Vaca-Garcia, page 315. The lithium chloride/N,N-dimethylacetamide system is indicated in Vaca-Garcia to be a true solvent for cellulose, making cellulosic hydroxyl groups readily

accessible. *See* Vaca-Garcia, page 315. In the "EXPERIMENTAL PROCEDURES" section of Vaca-Garcia, alpha-cellulose is dissolved in a lithium chloride/N,N-dimethylacetamide solvent to obtain a particle-free solution. *See* Vaca-Garcia, pages 315 to 316.

The Office Action asserts, in particular, that "Vaca-Garcia teach an agent comprising mixed anhydrides, particularly of acetic and octanoic acids, which covalently graft a plurality of hydrocarbonaceous chains to the cellulose group of the lignocellulose material through esterification." *See* Office Action, page 6. Applicants submit that this is a mischaracterization of what takes place in the method of Vaca-Garcia. In Vaca-Garcia, an agent comprising mixed anhydrides covalently grafts a plurality of hydrocarbonaceous chains to cellulose extracted from a lignocellulose material – the agent does not graft hydrocarbonaceous chains to cellulose of the lignocellulose material. It is one thing to treat wood with a mixed anhydride, and quite another to treat a substance extracted from wood with a mixed anhydride. Vaca-Garcia does not disclose or suggest treating a lignocellulose material with a mixed anhydride.

The Office Action asserts that "Vaca-Garcia teach that the mixed anhydride is capable of covalently bonding to the cellulose within lignocellulosic material." *See* Office Action, page 7. This is, again, a mischaracterization of what takes place in the method of Vaca-Garcia. The method of Vaca-Garcia only involves treatment of cellulose fully dissolved in lithium chloride/N,N-dimethylacetamide solvent. Nowhere in Vaca-Garcia is a mixed anhydride applied to a lignocellulosic material, i.e., a solid material composed both of lignin and cellulose. Vaca-Garcia does not remotely disclose or suggest treating cellulose within lignocellulosic material.

Moreover, one of ordinary skill in the art would understand that the lithium chloride/N,N-dimethylacetamide solvent used in Vaca-Garcia leads to the destruction of a piece of wood (by causing dissolution of cellulose). A skilled artisan would not modify a

method for preserving wood (as in Li) by incorporating techniques that lead to the destruction of wood (as in Vaca-Garcia). *See* MPEP §2143.01 (citing *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984)) ("If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification").

As the Board of Patent Appeals and Interferences has stated, "[t]he *KSR* Court noted that obviousness cannot be proven merely by showing that the elements of a claimed device were known in the prior art; it must be shown that those of ordinary skill in the art would have had some 'apparent reason to combine the known elements in the fashion claimed.'" *Ex parte Whalen*, 89 USPQ2d 1078, 1084 (Bd. Pat. App. & Int. 2008). The apparent reasons for employing a mixed anhydride to treat a lignocellulose material identified in the Office Action are illusory – Vaca-Garcia only suggests treating isolated cellulose in a solvent system that is destructive to wood. Starting from the teachings of Li, a skilled artisan intending to enhance the durability and dimensional stability of a lignocellulose material would not have been led to replace the anhydrides of Li with the mixed anhydrides of Vaca-Garcia.

A *prima facie* case of obviousness has not been made.

As explained, claim 1 would not have been rendered obvious by Li and Vaca-Garcia. Claims 2, 3, 5, 7-12, 14 and 15 depend from claim 1 and, thus, also would not have been rendered obvious by Li and Vaca-Garcia. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Li, Vaca-Garcia and Mahieu

The Office Action rejects claim 13 under 35 U.S.C. §103(a) over Li in view of Vaca-Garcia and EP 0 190 576 A1 to Mahieu ("Mahieu"). Applicants respectfully traverse the rejection.

For the reasons discussed above, Li and Vaca-Garcia fail to disclose or suggest each and every feature of claim 1. Mahieu does not remedy the deficiencies of Li and Vaca-Garcia. Mahieu is cited for its alleged disclosure of treating wood elements by spraying. *See* Office Action, page 9. However, Mahieu, like Li and Vaca-Garcia, fails to disclose or suggest a method in which a lignocellulose material is treated with a mixed anhydride including a hydrocarbonaceous chain derived from a C_2 to C_4 carboxylic acid and a hydrocarbonaceous chain derived from a C_6 to C_{24} fatty acid. Accordingly, the combination of references fails to disclose or suggest each and every feature of claim 1.

As explained, claim 1 would not have been rendered obvious by Li, Vaca-Garcia and Mahieu. Claim 13 depends from claim 1 and, thus, also would not have been rendered obvious by Li, Vaca-Garcia and Mahieu. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. Li, Vaca-Garcia and Dawson

The Office Action rejects claim 19 under 35 U.S.C. §103(a) over Li in view of Vaca-Garcia and Dawson et al., "Reactivity of radiate pine sape wood toward carboxylic acid anhydrides," ("Dawson"). Applicants respectfully traverse the rejection.

For the reasons discussed above, Li and Vaca-Garcia fail to disclose or suggest each and every feature of claim 1. Dawson does not remedy the deficiencies of Li and Vaca-Garcia. Dawson is cited for its alleged disclosure of treating pine with carboxylic acid anhydrides. *See* Office Action, page 10. However, Dawson, like Li and Vaca-Garcia, fails to disclose or suggest a method in which a lignocellulose material is treated with a mixed anhydride including a hydrocarbonaceous chain derived from a C_2 to C_4 carboxylic acid and a hydrocarbonaceous chain derived from a C_6 to C_{24} fatty acid. Accordingly, the combination of references fails to disclose or suggest each and every feature of claim 1.

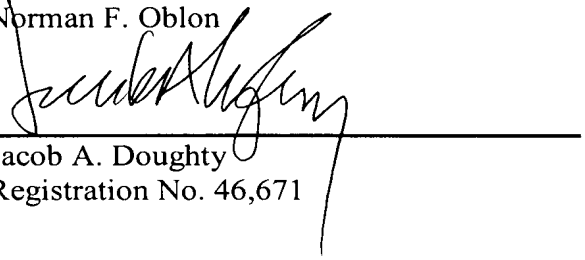
As explained, claim 1 would not have been rendered obvious by Li, Vaca-Garcia and Dawson. Claim 19 depends from claim 1 and, thus, also would not have been rendered obvious by Li, Vaca-Garcia and Mahieu. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

For the foregoing reasons, Applicants submit that claims 1-3, 5 and 7-19 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Jacob A. Doughty
Registration No. 46,671

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)